

Translation

PATENT COOPERATION TREATY

PCT/JP2003/014731



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 03NPCT003	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/014731	International filing date (<i>day/month/year</i>) 19 November 2003 (19.11.2003)	Priority date (<i>day/month/year</i>) 20 November 2002 (20.11.2002)
International Patent Classification (IPC) or national classification and IPC H01L 25/065, 25/07, 25/18, 23/12		
Applicant NEC CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 19 November 2003 (19.11.2003)	Date of completion of this report 28 June 2004 (28.06.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-4, 7-18, as originally filed
 pages _____, filed with the demand
 pages 5-6, filed with the letter of 10 May 2004 (10.05.2004)
- ☒ the claims:
 pages 1-3, 5, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages 4, 6-8, filed with the letter of 10 May 2004 (10.05.2004)
- ☒ the drawings:
 pages 1-29, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	4, 7	YES.
	Claims	1-3, 5, 6, 8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations

Claims 1 and 8

Document 1: JP, 8-340021, A (Hitachi, Ltd.), 24 December, 1996 (24.12.96), [0030]-[0045], [0058], [0059], [Fig. 14]

describes (A) an electronic part having (1) a semiconductor device with plural electrodes formed on a circuit face and (2) a flexible substrate (a) having (i) a wiring pattern and (ii) a polyimide film(s) on one face or both faces of the wiring pattern, and (b) bent around the semiconductor device, in which the flexible substrate has (1) a first electrode (a) provided on the face of the semiconductor device side, (b) connected with the device-side electrodes of the semiconductor device and (c) sealed by a thermoplastic insulation layer, and (2) a second electrode provided on the face different from the face provided with the first electrode, and the flexible substrate also has plural wiring pattern layers formed on it; and (B) that the electronic parts, each obtained as described above, are laminated.

Using a thermoplastic polyimide film is a well-known technical matter in the technical field of electronic parts. So, using a thermoplastic polyimide as the polyimide film described in document 1 is considered to be a matter obvious to a person skilled in the art.

Claims 2 and 8

Document 2: JP, 8-335663, A (Sony Corp.), 17 December, 1996 (17.12.96), [0031]-[0033], [0046] describes a technique in which a groove is formed in a bent portion of a flexible rewiring film provided around a bare chip.

It is considered to be a matter obvious for a person skilled in the art to apply the technique described in document 2 in which a groove is formed in a bent portion, to the bent portion of the flexible film described in document 1.

Claims 3, 5 and 8

Document 3: JP, 2001-308261, A (Seiko Epson Corp.), 2 November, 2001 (02.11.01), [0012]-[0028] describes a technique in which (1) a cavity is formed in a flexible substrate, and (2) a semiconductor device is accommodated in the cavity.

Juxtaposing the inventions described in documents 1-3 as required is considered to be a matter obvious to a person skilled in the art.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of : V.2

Claims 4 and 7

The documents cited in the ISR neither describe nor suggest the constitution in which a flexible substrate is bent around a semiconductor device, wherein the flexible substrate has (1) a first electrode (a) provided on the face of the semiconductor device side, (b) connected with the device-side electrodes of the semiconductor device, and (c) sealed by a thermoplastic insulating material, and (2) a second electrode provided on the face different from the face provided with the first electrode, and the flexible substrate also has a semiconductor device accommodated in the depression formed in a region where the bent flexible substrate is directly connected with itself.

Claims 6 and 8

Document 1 describes a multi-chip semiconductor device which has (1) a semiconductor device with one or plural electrodes formed on a circuit face and (2) a flexible substrate (a) having (i) a wiring pattern and (ii) a polyimide film(s) provided on one face or both faces of the wiring pattern and (b) bent around the semiconductor device, wherein the flexible substrate has (1) a first electrode (a) provided on the face of the semiconductor device side, (b) connected with the device-side electrodes of the semiconductor device and (c) sealed by a thermoplastic insulating material, and (2) a second electrode provided on the face different from the face provided with the first electrode, and the flexible substrate also has a region where the bent flexible substrate is directly connected with itself.

Using a thermoplastic polyimide film is a well-known technical matter in the technical field of electronic parts. So, using a thermoplastic polyimide as the polyimide film described in document 1 is considered to be a matter obvious to a person skilled in the art.